REMARKS

This Application has been carefully reviewed in light of the Office Action mailed April 5, 2004. In order to advance prosecution of this case, Applicants amend Claims 10, 11, 24, 25 and 31. Applicants respectfully request reconsideration and favorable action in this case in view of the following remarks.

Section 103(a) Rejections

The Office Action rejects Claims 1-37 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2003/0061091 issued to Amaratunga et al. ("*Amaratunga*") and in view of U.S. Patent No. 6,216,956 issued to Ehlers et al ("*Ehlers*"). Applicants respectfully traverse these rejections for the reasons stated below.

Applicant submits that the Examiner has not shown a *prima facie* case of obviousness for at least two reasons. First, the required suggestion or motivation to combine *Amaratunga* and *Ehlers* has not been shown. Second, assuming for the sake of argument that a suggestion or motivation to combine *Amaratunga* and *Ehlers* is shown, *Amaratunga* and *Ehlers*, whether alone or in combination, still fail to disclose all of the limitations of the pending claims.

No Motivation to Combine

With respect to independent Claims 1 and 15, the Examiner states[1] at page 8 of the Office Action that, "it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Ehlers' reference into Amaratunga's by implementing the functions which require processing on the part of the processor, such as environmental condition control, price and energy consumption control, on the memory unit such that they can be processed without invoking disk i/o and memory loading/swapping because by doing so the processing system would have performed more efficiently." Thus, the Examiner's apparent reason for combining *Amaratunga* and *Ehlers* is merely a statement regarding efficiency, which falls well short of the required evidence of a motivation to combine *Amaratunga* and *Ehlers* and, hence, the Examiner has not established a *prima facie* case of obviousness.

[1] With respect to Independent Claim 28, the Examiner includes a similar statement.

The fact that a prior art system could be modified so as to produce the claimed invention is not a basis for an obviousness rejection unless the prior art suggested the desirability of such a modification. *In re Gordon,* 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). The Examiner is reminded that "[t]he factual inquiry whether to combine references must be thorough and searching." *In re Sang-Su Lee,* 277 F.3d 1338, 1343. And "[an] examiners conclusory statements . . . do not adequately address the issue of motivation to combine." *Id.* Based on this lack of evidence, it is obvious that the Examiner is improperly using the Applicant's disclosure as a blueprint for piecing together various elements of *Amaratunga* and *Ehlers*.

In addition, Applicants submit that one skilled in the art would not be motivated to combine *Amaratunga* and *Ehlers* because *Amaratunga* is directed towards a process in an industrial facility that utilizes a transfer function that is developed and modified based on regression rather than from physical principles, while *Ehlers* is directed towards an environmental control process for buildings, which collects both environmental data and energy consumption data to determine the extent to which internal temperature settings should be increased or decreased to reduce energy use. The differences between industrial facility systems control and HVAC control are substantial.

Industrial systems routinely have large numbers of sensors and high-level control systems to monitor and improve their efficiency. In contrast, buildings typically have a minimum number of sensors; thus the technology to achieve optimum efficiency is fundamentally different. This is evident by the separate technical organizations for engineers in these activities. The predominant organization for engineers working on energy efficiency in buildings is the American Society of Heating, Refrigerating and Air Conditioning Engineers; virtually none of these engineers work on industrial energy efficiency. There are completely separate research programs within the U.S. Department of Energy for energy efficiency in buildings and industrial energy efficiency. Other organizations with separate programs in industrial energy efficiency and buildings energy efficiency include the Alliance to Save Energy, the National Research Council of Canada, and numerous state energy offices. Other differences are evident in the energy streams controlled. *Amaratunga* considers sites or systems that use one or more of electricity, natural gas, diesel fuel, fuel oil, coal, gasoline, and combinations thereof (*Amaratunga*, para. 0003). *Ehlers* is concerned with the heating

and cooling of buildings, but otherwise is generally concerned with the energy consumption in flows of heated and/or cooled water or air. Industrial processes involve much higher energy intensity than the flows in buildings. For example, processes operating at 500°F to 1000°F are common, while in buildings, heating and cooling are customarily delivered to rooms as heated or cooled air that is typically within 20 – 40 °F of the room temperature. Even when steam is used to transmit heat, it is virtually always at 250°F or less.

Furthermore, *Amaratunga* in para. 0047, lines 24-28 uses feedback "in an attempt to bring the energy-consuming system to a more efficient state." The process described examines the data and *Amaratunga* states, "[a]ny large or abrupt deviation from the historical trend can be identified as a likely contribution to the variance of energy consumption" or the excessive use. It further states that sensitivity analysis may also be used "to provide a higher degree of confidence for the likely causes of the variance." *Amaratunga* shows in Figure 2 the use of feedback control to take action. However, Figure 2 shows the use of a regression generated transfer function as the basis for the feedback control. Those skilled in the art of HVAC control know that control using a transfer function based on regression of measured data provides poor control for HVAC systems.

Consequently, for at these reasons, a *prima facie* case of obviousness cannot be maintained with respect to Claims 1-37, as the Examiner has not shown the requisite proof necessary to establish a suggestion or motivation to combine *Amaratunga* and *Ehlers*. Applicants respectfully request reconsideration and allowance of Claims 1-37.

Each and Every Limitation Not Taught or Suggested

Claim 15, in part, discloses "determining whether an operating parameter of an energy consumption system of the facility requires modification to increase efficiency using the energy consumption data and the environmental data." Applicants submit that neither *Amaratunga* nor *Ehlers* teach or suggest at least this limitation of Claim 15.

Applicants note that *Ehlers* collects both environmental data and energy consumption data (e.g., Figures 2, 3 and 4), but uses them to determine the extent to which internal temperature settings should be increased or decreased with a consequent reduction in comfort to reduce energy use. *Ehlers* also uses this information to help select the least expensive energy source or supplier where multiple suppliers are available. In contrast, the process of Applicants uses the environmental and energy consumption data to change system

operating parameters to reduce energy consumption for any specified comfort condition, or set of conditions. *Amaratunga* does collect environmental data, but since *Amaratunga* is process oriented, *Amaratunga* never explicitly discloses a process for "determining whether an operating parameter of an energy consumption system of the facility requires modification to increase efficiency using the energy consumption data and the environmental data and automatically modifying the operating parameter of the energy consumption system corresponding to the required modification."

Hence, for this additional reason, a *prima facie* case of obviousness cannot be maintained with respect to Claims 15, as the Examiner has not shown that either *Amaratunga* or *Ehlers* teaches or suggests each and every limitation of Claim 15. Applicants respectfully request reconsideration and allowance of Claims 15 and the claims that depend therefrom.

In addition to depending from independent Claims 1 and 15, respectively, which are shown above to be allowable, Claims 5 and 18 are also allowable because they each contain additional limitations not disclosed by *Amaratunga* or *Ehlers*. For example, Claim 5 recites, "wherein the environmental data comprises environmental forecast information, and wherein the analysis engine is operable to determine whether operating parameter modification is required for the energy consumption system using the environmental forecast information." *Amaratunga*'s predictive system is intended to predict energy usage of industrial manufacturing facilities where energy usage is dependent on the factors such as the nature of the energy, energy-provider controlling factors, energy consumption site particulars, details of energy consumption system, and manufacturing or operating process variables. These are all variables over which the industrial facility has control. In contrast, Applicant's system uses environmental forecast information of factors outside the control of the building operator to vary HVAC system parameters to optimize energy use. Again, *Amaratunga* doesn't bother to mention environmental predictions, because they are not important for his control of manufacturing processes.

Ehlers controls the "environmental condition" (basically the thermostat) to reduce energy use. This is related to the claims above in that the only information contained in the reports is energy consumption vs. time for various loads. In contrast, the reports of Applicants contain information and plots of energy consumption plotted as a function of

ambient conditions and each control variable that is relevant to a particular system as well as the time dependent plots that have been used for decades. The plots are also presented to maximize the information transfer.

For at least this additional reason, a *prima facie* case of obviousness cannot be maintained with respect to Claims 5 and 18, because the cited references fail to disclose each and every limitation of Claims 5 and 18. Therefore, Applicants respectfully request reconsideration and allowance of Claims 5 and 18.

In addition to depending from independent Claims 1 and 15, respectively, which are shown above to be allowable, Claims 7 and 20 are also allowable because they each contain additional limitations not disclosed by *Amaratunga* or *Ehlers*. For example, Claim 7 recites, "a validation engine residing in the memory and executable by the processor, the validation engine operable to validate the energy consumption data." Validate means "to make valid; substantiate, confirm." Hence a validation engine must take specific actions to determine whether the data is reasonable and valid, and warn the user if there is reason to doubt the validity of the data. The *Amaratunga* process cited by the Examiner in no way constitutes validation. If the data is consistent with the benchmark data, the system is deemed to be operating efficiently. If it is not, the system is deemed to be operating inefficiently. A validation engine would not simply assume that data different from the benchmark data represents inefficient operation. It would carry out a process to determine whether the data is valid before making a judgment about the system efficiency.

For at least this additional reason, a *prima facie* case of obviousness cannot be maintained with respect to Claims 7 and 20, because the cited references fail to disclose each and every limitation of Claims 7 and 20. Therefore, Applicants respectfully request reconsideration and allowance of Claims 7 and 20.

In addition to depending from independent Claims 1, 15 and 28, respectively, which are shown above to be allowable, Claims 10, 24 and 31 are also allowable because they each contain additional limitations not disclosed by *Amaratunga* or *Ehlers*. For example, Claim 10 recites, "the control engine is further operable to control a variable rate of energy consumption data collection at the facility." In *Amaratunga*'s statement at the end of

para. 0047 "where a feedback control capability has been built into the energy consumption predicting system, data processing module 20 may take action on the most likely causes in an attempt to bring the energy consuming system toward a more efficient state in step S7." *Amaratunga* does not mention or even allude to changing the rate of data collection in the reference cited.

For at least this additional reason, a *prima facie* case of obviousness cannot be maintained with respect to Claims 10, 24 and 31, because the cited references fail to disclose each and every limitation of Claims 10, 24 and 31. Therefore, Applicants respectfully request reconsideration and allowance of Claims 10, 24 and 31.

In addition to depending from independent Claims 1, 15 and 28, respectively, which are shown above to be allowable, Claims 13, 26 and 30 are also allowable because they each contain additional limitations not disclosed by *Amaratunga* or *Ehlers*. For example, Claim 13 recites, "the data collectors are coupled together, and wherein one of the data collectors is operable to transmit the respective acquired energy consumption information to another data collector." *Ehlers* makes it very clear in multiple places that elements 21 and 22 are data storage devices and not data collectors. For example, col. 9, lines 25-29, *Ehlers* states, "[t]he collected data will be normalized in pulse count to units of energy consumed. It is then passed to function 21 for short term storage and data considered of historical importance can be stored in function 22 for long term storage." This explicitly states that the data is collected before it arrives at 21 or 22. And they are explicitly identified as storage devices rather than data collectors.

For at least this additional reason, a *prima facie* case of obviousness cannot be maintained with respect to Claims 13, 26 and 30, because the cited references fail to disclose each and every limitation of Claims 13, 26 and 30. Therefore, Applicants respectfully request reconsideration and allowance of Claims 13, 26 and 30.

CONCLUSIONS

Applicants have made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other apparent reasons, Applicants respectfully request full allowance of all pending Claims. If the Examiner feels that a telephone conference or an interview would advance prosecution of this Application in any manner, the undersigned attorney for Applicants stands ready to conduct such a conference at the convenience of the Examiner.

Applicants believe no fee is due. However, should there be a fee discrepancy, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

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